Volunteer Firemen

JUNE

1943

NATIONAL FIRE PROTECTION ASSOCIATION
INTERNATIONAL
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Annual Meeting Number

Caught in Time With a Booster Line

Your auxiliary truck, equipped with a front mounted pump and small tank, together with other accessories, can handle the large majority of your alarms.

Use it on all alarms and hold your heavier, more expensive apparatus in reserve. Your larger pumper can be connected to a hydrant upon arrival and used if necessary.

The truck shown below has been in service four years in a city of over 60,000 population. It has complete First-Aid equipment, in addition to other accessories, and by being first to every fire, it has, unaided, put out over 80% of all fires during this four-year period. This unit is also used on all grass fires because of its mobility and own water supply.

Further details as to the several sizes and models of pumps suitable for this application will be given on request. We can also furnish a list of accessories carried on this particular truck, giving sources of supply for accessories.

AMERICAN-MARSH PUMPS, INC.

MAKERS OF BARTON-AMERICAN FRONT AND MIDSHIP MOUNTED PUMPS

BATTLE CREEK, MICHIGAN . . . . . *PUMPS AND PUMPS ONLY SINCE 1873*

Volunteer Firemen

THE cover picture this month shows a powerful 1,000-gallon pumper of the Lewistown, Pennsylvania, Fire Department in operation at a session of the last Pennsylvania Fire School. Lewistown is to be the host to the Fifth Annual Pennsylvania Fire School scheduled for August 15th–21st. The fact that this department, under Chief A. Nelson Yearick, is said to be one of the best equipped in the state is expected to contribute to the success of the school.

Pennsylvania is far from being the only state planning an active firemen's training program this summer. The attractive cover picture should remind us that one of the privileges of being a fireman is the opportunity of taking part in the interesting fire schools being held in almost every state as a part of the war-time training program. Men who get ahead in the fire service invariably are those who want to know the answer to any situation they may come up against.

Never has there been a greater opportunity to learn about fire fighting and fire protection than is now provided by the many state training programs. The standard of efficiency of volunteer fire departments has never been so high as at the present time.

ANYONE who studies the causes of fires is struck by the fact that an overwhelming majority of all fires are due to well-known and easily understood causes. Exact figures on total fire losses and causes are, of course, not available, but an interesting study, conducted by the National Fire Protection Association Fire Record Department, estimates that there were 736,000 fires in the United States in the year 1941 and that of those 168,000 could be attributed to heating, including defective chimneys, defective furnaces and stoves, overheated furnaces, sparks from open fires, defective oil burners, overturned lamps, and the like. 157,000 of these fires were due to the careless disposal of matches and cigarettes. 62,000 of them were due to misuse or improper installation of electrical equipment, and 60,000 to sparks falling on wooden shingle roofs. 32,000 were due to unnecessary accumulations of rubbish and 24,000 to careless handling of gasoline, kerosene, etc.

A study made of a large number of fires occurring in one large industry with plants scattered around the country confirmed the experience cited above. In only one case out of hundreds of fires recorded was the cause due to what might be called a special industrial hazard. All of the other fires were due to simple causes.

Volume 10 Number 6

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THE VOLUNTEER FIREMAN

The exceptions to the rule are always interesting and, of course, there are many fires that are due to unusual circumstances. We hear from time to time of apparently authentic cases of fires being started by birds and other animals. A dwelling was destroyed in Lincoln, Ill., because a swallow picked up a lighted cigarette butt from the ground and flew with it up to her nest on a wooden shingle roof. In Wausau, N. C., a big bug flew through a match flame which set its wings on fire. The bug headed for a window and ignited the curtains. In Gloversville, N. Y., a mouse got into the pocket of some trousers hanging in a closet. Some matches were in the pocket and in the ensuing scramble the mouse was burned to death and part of the house was also burned. In a house in Springfield, Mass., squirrels got into the attic and the householder lighted sulphur candles in an attempt to drive them out. The squirrels knocked over the candles and set the house on fire.

There are other unusual causes of fire. Sun shining through a little defect in plate glass sets a number of fires. A fireworks display in a store window in Toronto apparently became ignited from that cause. Some throat tablets contain potassium chlorate and have started fires when rubbed up against the striking surface of safety match boxes in a coat pocket. There are even cases where people are fire hazards. A woman who fed leather soles into a machine which coated them with rubber cement started five fires from static sparks from her finger tips. After one of these fires in which she was severely burned she was under medical care for several weeks and, during her absence, another girl operated the machine without a single fire. When the first operator returned she had been at work only fifteen minutes when the flammable vapors were ignited again. She was assigned to other work and there were no more fires on this machine.

Perhaps the most classic example of a curious fire was the case in New Jersey where a passerby noticed a fire alarm box on fire and stopped a bus going by. The fire extinguisher taken from the bus was found to be full of gasoline so that its use on the burning fire alarm box promptly caused its complete destruction.

Unusual things like these do happen, but they are rare and they only serve to emphasize that no one can afford to fool with fire.

Percy Bugbee

Oklahoma Fire Service Training Building and No. 2 Fire Station

Tactical Fire Defense
in the City of Stillwater, Oklahoma

Compiled by

Chief J. Ray Pence and members of the Stillwater Fire Department

A MANUAL of tactical fire defense has been compiled by the officers and members of the Stillwater Fire Department to develop a more systematic method of attack, control and extinguishment of fires at designated locations in the city. Sketches have been prepared to bring out the proper placement of available fire fighting apparatus for first, second, and third lines of defense. It is realized that fire and weather conditions might readily change the operation procedure of the department from the standpoint of advancing hose lines so not much emphasis has been placed in these studies upon where the lines are to be advanced.

This brochure shows in black and white what the hookups are and what each company is to do in event of a fire in a given building. We have already had three fires involving buildings studied and every man and fire company carried out the evolution as drawn. Each fireman has a personal copy of the manual and is urged to study and memorize its contents. The men are encouraged to obtain further information as to fire stream layouts, operational hydraulic and training problems from Assistant Chief Everett Hudiburg, Fire Department Drillmaster. Likewise should additional data be required in the study of mechanical problems, or maintenance of apparatus, the men are expected to consult Assistant Chief Don K. Thomas, Master Mechanic of the department.

In our tactical fire defense plan we use the following system of size up:

I. Facts of the Situation:
   - *a.* Time of the emergency
   - *b.* Location of the emergency
   - *c.* Nature of the emergency
   - *d.* Life hazard
   - *e.* Exposures present
   - *f.* The buildings involved
   - *g.* The fire itself
   - *h.* Weather conditions

II. Probabilities of the Situation:
   - *a.* Life hazard
   - *b.* Extension of the fire
   - *c.* Explosions
   - *d.* Weather changes
   - *e.* Unnecessary damage to building or contents

III. Our Own Situation:
   - *a.* Manpower, apparatus, equipment, and hose supply
   - *b.* Additional help available
   - *c.* Water supply, mains, hydrants and lakes available
   - *d.* Private fire protection
   - *e.* Action already taken

IV. The Decision:
   - *a.* This part of the size up is a clear and precise mental picture of the action intended to be taken. It is the responsibility of the officer in charge and a part may have been previously in mind while the rest may be impromptu.

V. The Plan of Operation:
   - *a.* The issuing of orders to officers and men to carry out the decision made.
   - *b.* The supervision of operations during the attack, control and extinguishment.

Note: It is only as a result of a special order from the chief officer that a different defense phase shall be carried out such as the first, second or third plan of operations. Any such changes are carried out in a manner formulated in the departmental training program.

FOR use in the study of tactical fire defense the manual contains data on fire stream calculations.

The feeding of 1½-inch hose does not justify the calculating of friction loss per 100 feet because in our department we use only 200-foot lines. Seventy pounds pressure is considered adequate for such lines but because we use fog and combination fog and straight stream nozzles on our 1½-inch lines, we operate at pump pressures of 100 to 150 pounds.

The feeding of 2½-inch hose is a somewhat more important operation and in order to get satisfactory streams it is necessary to make approximate calculations on the loss by friction per 100 feet of hose. This is done by the means of the following table covering the nozzle sizes used by our department. The friction loss is suggested by the nozzle tip used.

When two lines of 2½-inch hose are siamesed to feed a master stream the friction loss is reduced about 50 per cent. When three lines of 2½-inch hose are siamesed the friction loss is reduced about 75 per cent. One line of 3-inch hose will serve approximately the same purpose as two 2½-inch lines. Master streams are calculated by the use of the formula below.

PUMP STREAMS OPERATED AS MOBILE LINES

Nozzle Size (Inches)	*Nozzle Pressure (Constant)*	*Gallons per Min. (Approximate)*	*Friction Loss per 100 Feet*
⅞	50	150	7
1	50	210	10
1⅛	50	265	18

MASTER STREAMS

Nozzle Size (Inches)	*Factor Suggested by the Nozzle Size*	*One 3-in. Line or Two 2½-in Lines Siamesed. Friction Loss is ½ Factor*	*Three 2½-in. Lines Siamesed. Friction Loss is ¼ Factor*	*Gallons per Minute (Approx.)*
1½	50 Pounds	25 Pounds	12 Pounds	600
1¾	75 Pounds	40 Pounds	20 Pounds	815
2	120 Pounds	60 Pounds	30 Pounds	1,060

Note: These master streams are all figured at 80 pounds nozzle pressure. Probably 90 per cent of our master streams will be with the 1½-inch tip.

UNDER the heading of "Things to Remember" our manual points out that:

1. All fire stream calculations are approximate because all we are interested in is that we have a near perfect fire stream and that we do not overtax the pump.

2. You must add five pounds loss for each story elevation when figuring friction loss.

3. You must add up to fifteen pounds loss for the monitor nozzle or deck gun when figuring friction loss.

4. You must not leave the driver of the company by himself to do the "hook-up."

5. If in doubt whether the pump will be needed or not, hook up anyway.

6. Get in a comfortable position when operating a mobile or hand line at a large fire that may cover a long period of time.

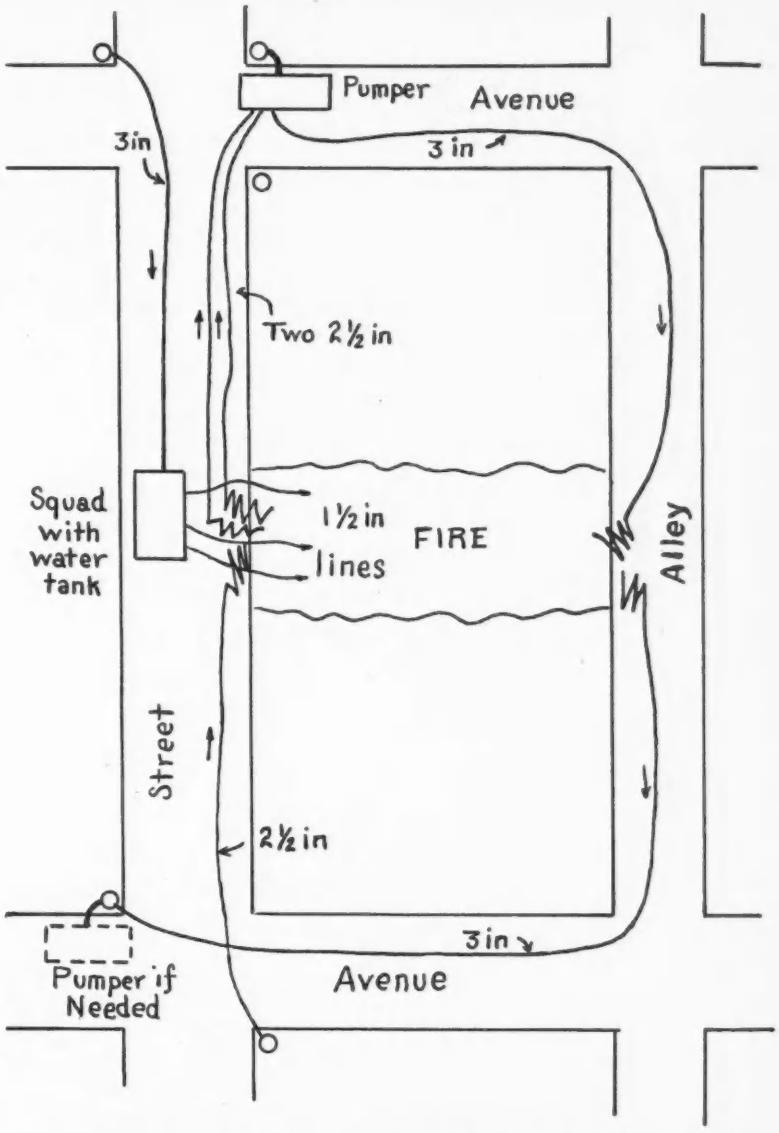
7. Move the stream after you have made a black spot in the fire area. The water is doing little good after this point. If no fire is showing shut the pipe.

In addition to the above-mentioned data, the manual on Tactical Fire Defense contains a list of every fire hydrant in the city with a record of the fire flow and residual pressure available. Thus we know that our hydrants vary from flows of 90 gallons with no residual pressure to 1,040 gallons flowing with 38 pounds pressure. Thus the tactical plans can best utilize the flows known to be available at the various hydrants.

BELOW is a list of the "target hazards" for which we have already prepared studies of tactical fire defense. While the names of these buildings will not mean much to persons outside of Stillwater, the list will indicate the types of buildings for which tactical studies are particularly useful:

The Hoke Building, a business block
Williams Hall, Oklahoma A. & M. College
Extension Building, Oklahoma A. & M. College
The Burdette Hotel
South High School
Chemistry Building, Oklahoma A. & M. College
The First Christian Church
The First Baptist Church
The First Presbyterian Church
A Typical Gasoline Tank Truck Fire
Stillwater Milling Company
Old Central Building, Oklahoma A. & M. College
The Going Hotel
The Ingham Lumber Company

OUR STANDARD FIRE DEFENSE LAYOUT



PLAN FOR THE FIRST AND SECOND DEFENSE IN THE FIRE ZONE STILLWATER, OKLAHOMA

1. The first company to arrive on location lays a hydrant line from the nearest available hydrant on the way to the fire. After removing sufficient hose one or two reverse lines will be laid by the same piece from the fire to a hydrant at the next corner. The pump will be hooked up to supply these lines.

2. The squad truck, consisting of a 600-gallon pumper with a 300-gallon water tank, will take up a position close to the fire and advance the three 1½-inch lines carried connected to the water tank discharge manifold for first defense.

3. The third pumper company will lay from the nearest available hydrant to the intake of the squad to back up the water tank used to supply the 1½-inch lines. Normally this feed line will consist of 3-inch hose carried by pumper No. 1 of our department. After the feed line has been laid to the squad, this pumper is expected to lay a line from the pumper that is already hooked up to the rear of the fire. If another line is needed at the rear of the fire it may be supplied by the same machine using a fire-to-hydrant layout. This pumper may then be used to supply this last line, or if hydrant pressures are adequate it may be sent back to quarters to reload and cover in.

4. No mention has been made in this discussion of the operation of the ladder truck which would be in accordance with the usual procedures for the operation of service ladder trucks. This machine is provided with a deck gun which would be supplied by existing lines as needed.

Understanding Heat

By Robert S. Moulton, Technical Secretary
National Fire Protection Association

FROM what sources can we expect sufficient heat for igniting a combustible fuel-oxygen mixture? The most commonly expected source of heat is from combustion. We light a match to produce a flame with which to ignite the fuel-oxygen mixture from a gas burner. Likewise with a match flame we distill a combustible gas from a handful of paper and ignite this, which in turn ignites wood kindling and a fire is started. If gasoline be spilled it vaporizes at room temperature and the vapor thus formed, being heavier than air, drifts along the floor and comes in contact with an open flame. The circumstances are completed and a fire results.

Many fuels do not require as much heat as a flame produces (approximately 1,000 to 2,000 degrees F.), but may be ignited by hot metals or other materials. When we consider that iron must have a temperature of 752 degrees F. to be barely visible in the dark, it is apparent that gasoline fumes with an ignition temperature of 495 degrees F. may be ignited by iron that is far from being red hot. Likewise, dry wood, paper and other cellulose material may be ignited by contact with materials far below the temperature of flame.

Electricity is a source of ignition heat, and may be listed as due to overheating, arcing and sparking. When electric current flows through a conductor, that conductor offers resistance to the flow of current and the resistance produces heat. The amount of resistance and consequent amount of heat produced is determined by the material of the conductor, its size, and the amount of current flowing. Thus, a No. 14 rubber-insulated copper wire will safely carry a current of around 15 amperes (such as in ordinary 110-volt house wiring circuits), producing some heat, but no more than can be safely dissipated. However, if the current load be increased to 30 amperes, the heat is likely to melt the rubber insulation on the line. When the ignition temperature of the insulation is reached, it will take fire.

When either an electric circuit is broken, or the bare conductors of a circuit be brought close together, the current jumps the air gap, producing an arc. The arc or flash thus produced is exceedingly hot, reaching a temperature around 6,000 degrees F. So efficient is the electric arc that it is used as the ignition agent in internal combustion engines. It is apparent that in the presence of gaseous fuel a fire can be started easily by an electric arc, and any opening or closing of a circuit is apt to produce one. Loose connections allowing even momentary opening and closing of a circuit, or the breaking of a light bulb, may afford an arc, or spark, as commonly called, that furnishes the ignition temperature for a union of fuel and oxygen.

Friction of one material upon another, or of two pieces of the same material, produces heat in proportion to the amount of the friction. Especially is this applied to bearings in machinery. The heat thus produced is carried to the outer surface and to the air by oil, which also helps to reduce the amount of friction. If, however, a sufficient amount of oil is not supplied to a bearing, heat may be generated to ignite surrounding combustible materials. Friction of metals may be so severe as to cause sparks of fused metal that may become causes of ignition if they fall on combustible material.

Then, there is the heat of chemical action. To be sure, combustion is a chemical action, but in this case let us consider only the slow generation of heat due to chemical action that may become great enough to cause ignition either of the materials concerned or of such materials as may be heated by conduction.

One group of materials, such as unslaked lime and several other chemicals, are not combustible, but, when they come in contact with water, generate sufficient heat to ignite combustible materials. Another group of materials, such as phosphorus in the presence of air, and sodium and potassium in the presence of water, have an ignition temperature below ordinary temperatures.

Still another group includes oils and fats, and other materials subject to spontaneous ignition.

ONCE generated, heat is transferred from one material to another by one or more of three methods: (1) conduction, (2) radiation, or (3) convection. By conduction heat from one body is transferred to another by actual contact. Thus, a steam pipe passing through wood construction transfers its heat to the wood by actual contact.

By radiation heat is transferred from one body to another through intervening space by heat rays, much the same as light is transferred by light rays. Thus, heat comes to us from the sun. The heat from the steam pipe used in the previous example may be transferred to the wood construction to some extent by radiation even though there be space between the two. A stove heats a room partly at least by radiation.

Radiated heat is not absorbed by the air to any extent. Like light it travels through space until it hits a solid object, where it is absorbed and proceeds from there through the object by conduction. Like light, radiated heat is reflected from bright surfaces, and some part of radiated heat striking any bright surface is reflected back. Like light, radiated heat will pass through glass. Heat radiation is a two-way process. Heat radiates from the stove to the wall, and the wall, when heated above the temperature of other objects in the room, itself radiates heat in all directions, just the same downward as up and to the sides. The effect of heat rays is practically independent of the distance they travel through the air, except that the rays from a heat source spread out in all directions as they travel, and the farther away you are from the heat source the less the concentration of rays that hit you.

By convection, heat is transferred by a circulating medium, either a gas or a liquid. Thus heat generated in a stove is distributed throughout a room mostly by heating the air by conduction, and it in turn, through circulation, heats distant objects in the room by conduction.

Heated air expands and rises, and for this reason heat transfer by convection is mostly in an upward direction, though air currents can carry heat by convection in any direction. The ceiling over a stove is heated both by radiation and convection. The floor under the stove is heated only by radiation from the bottom of the stove, unless it is a type of stove that rests on the floor without legs, in which case the floor is heated by heat conducted downward through the metal of the stove.

Heat transferred by conduction depends upon the heat conductivity of the material through which the heat is passing. Heat conductivity varies widely for different materials. Wood and solid asbestos have about the same heat conductivity. Fibrous materials, such as cotton, wool, mineral wool, etc., have heat conductivity a quarter to a third that of solid wood. Brick-work and concrete have a heat conductivity four to six times that of wood. Iron has a heat conductivity about 3,000 times as great, and aluminum about 12,000 times as great as wood.

The rate of heat transfer through any material depends upon the temperature difference between the point where the heat enters and where it leaves. Thus, if one end of a piece of metal is heated to 1,000 degrees F. and the other end is at a temperature of 0 degrees F., the rate of flow of heat will be twice as great as if the temperature of the hot point were only 500 degrees F. Another point to be considered is that the amount of heat that will flow depends, among other factors, upon the size of the heat path. Just as

Please continue on Page 25

Pictorial Record of a Conflagration

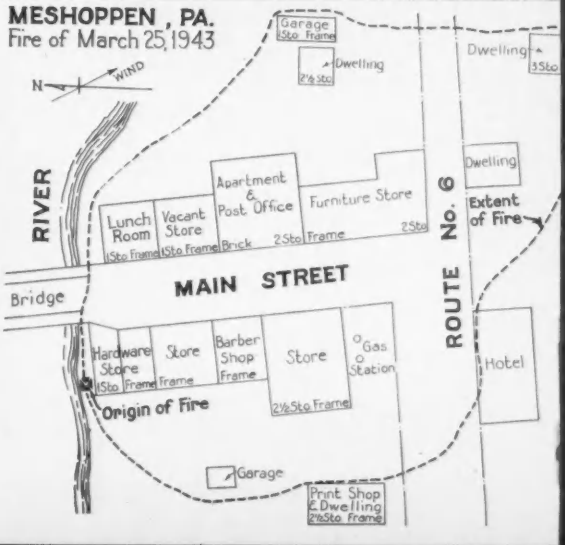
There are few events which change the face of a community more quickly and more drastically than a big fire. Within a very few minutes a familiar business or residential area can be transformed into a void of blackened ruins. These will, in time, be replaced with structures that must look strange to a person long acquainted with the old surroundings. For this reason a pictorial record of a fire holds more than a little interest. Many fire departments find it advantageous to have a photographer at hand to record important fires on film. Thus the spread of the blaze and fire-fighting methods may be recorded for future study. Shown on this page are pictures sent by Secretary William L. Thomas, of the Meshoppen Fire Company, showing the progress of a conflagration that swept through Meshoppen, Pa., March 25th, when driven by a high wind.

View of the business district of Meshoppen, Pa., prior to the fire of March 25th. The buildings burned consisted for the most part of closely built wooden structures, one and two stories in height, without fire walls or other cutoffs. Burning rubbish started a fire under a building erected on stilts near the river. This building was near the bridge on the left-hand side of the street.

Left. **Flames swept up from the river within a very few minutes from the time the blaze was discovered. Within twenty minutes' time the fire had spread to structures across Main Street.**

Right. **Fire fighters were able to save a hotel building and a print shop on the west flank of the fire. To actually stop a conflagration of this magnitude would call for heavier streams than those shown in this view.**

Below. **The center of the burned business district following the fire. In addition a number of other nearby buildings were destroyed as shown on the accompanying diagram.**



The Pennsylvania Fire School

By Arthur W. Espey, Adviser Fire Training,
Public Service Institute

PENNSYLVANIA has a total of almost 1,800 fire companies and the number of volunteer firemen in the State has been estimated at close to 250,000 men. The training of this vast fire fighting army is the job of the Fire School, operated by the Public Service Institute of the Department of Public Instruction of the Commonwealth of Pennsylvania, with offices in Harrisburg. The Public Service Institute was organized in 1938 under provisions of the federal George-Deen Act, contributing funds for "in-service" training.

The Police School was the first to be organized and was followed almost immediately by the institution of the Fire School, which conducted a limited number of classes during the fall of 1938. The Fire School was under the direct supervision of the Principal of the Public Service Institute until the writer was named Fire School Head in December, 1939.

At the present time the Public Service Institute has under its supervision the following "in-service" training programs for employees in "public and other service occupations." R. Chapman Carver is Principal of the Public Service Institute:

The Police School, Harold W. Pierce, Adviser.

The Fire School, Arthur W. Espey, Adviser.

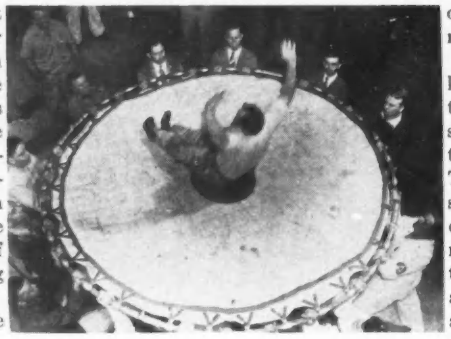
The Correctional Workers' School, Bruce A. Mellinger, Adviser.

School for Tax Assessors, Russell Lloyd, Adviser.

School for School Board Secretaries, Alfred S. Holt, Adviser.

School for Building Custodians, Alfred S. Holt, Adviser.

The Fire School program is arranged as a "three-cycle" plan of operation. The Annual Pennsylvania Firemen's Training Conference is designated as "Cycle One."



THE Conference is conducted each year during the latter part of August or the early part of September. During the past four years it has been held at the Pennsylvania State College with the State College and the Firemen's Association of Pennsylvania, co-operating in presenting the program. This year the Conference is to be held at Lewistown, August 16th to 21st, inclusive.

In many respects the Conference resembles what is commonly referred to as "the short course." A full six-day period of training is offered to eight diversified groups or "Sections" into which the Conference is divided. The following section programs are presented:

A. Fire Chiefs and Fire Department Supervisory Officers
B. Fire Department Engineers, Drivers and Mechanics
C. Firemen
D-1. Qualified Fire School Instructors
D-2. Candidate Fire School Instructors
E. Fire Protection Engineers, Industrial Protection Supervisors
F. Fire Police
G. Fire Department Rescue Squad and Ambulance Personnel

The courses for each Section include both practical training and classroom activities. Each is handled by a Section Director chosen after careful consideration of qualifications. These men are assisted by competent and experienced aides. The daily training periods for both classroom and outside performance total approximately six hours; or a total 36-hour routine for the Conference.

The Sections, or classes, for Fire School Instructors, designated D-1 and D-2 are directed by an expert in the field of teacher-training. He is assisted by several experienced fire department instructors who, in turn, are aided by the qualified fire school instructors comprising Section D-1. These sessions include a review of accepted practices and suggested improvements and deletions are considered.

Section D-2 is presented to men who have shown reasonable proof of their potential ability to serve as fire school instructors. The program offered includes teacher-training and practical instruction. Through a carefully devised weeding-out system it is generally decided, at the conclusion of the school, which of the men may be expected to succeed in the instructional phases of our program. Those who are accepted are carefully watched thereafter and, except in rare instances, are not assigned to instruct a group in any part of the state until their probationary service has been completed. During the probationary term these "baby instructors" are given an opportunity to assist the regular instructors and thus acquire the desired technique. After a probationary period that is largely dependent upon the degree of proficiency displayed, these newer instructors, if satisfactory, are added to the roster of fire school instructors. At the present time we have 70 active instructors, 37 probationary instructors, 16 instructors on the inactive or reserve list, and 24 instructors in the armed forces or serving in defense posts. Of these last 24 instructors, 13 are holding important positions in the fire service at various Army and Navy posts and ordnance plants.

In addition to the 36 hours of instruction for each Section during the annual conference, all enrollees are required to report each evening for general assembly lasting two hours. Two outstanding speakers, men who are experts in fire fighting or fire prevention, are chosen to address each assembly. Educational films and innovations in fire training are presented.

Another feature of the Annual Conference are demonstrations by fire equipment manufacturers. The Chemical Warfare Service of the U. S. Army has also presented an instructive demonstration. Gas mask training under simulated conditions of fire or other emergency is part of the prescribed training for all men enrolled at the Conference.

The following figures give the enrollment at the first four Firemen's Training Conferences.

Year	*Enrollment Excepting Instructors'*	*Enrollment Instructors' Classes*	*Total*
1939	155	36	191
1940	159	45	204
1941	306	49	355
1942	314	73	387
Total	934	203	1137

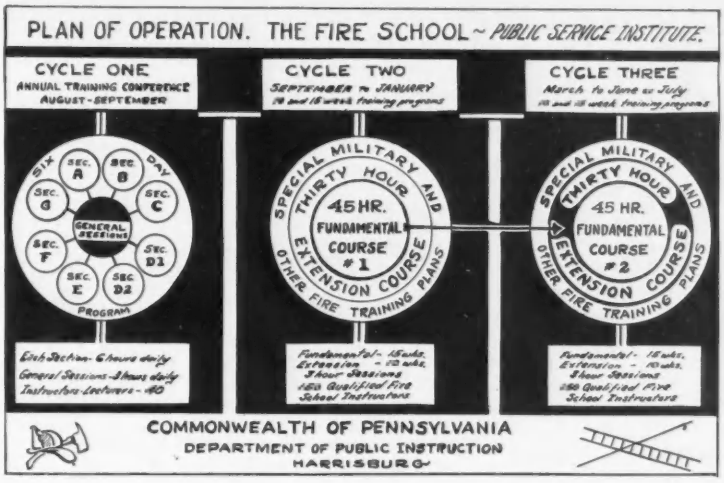
IMMEDIATELY following the Annual Conference each year a state-wide training period is conducted from September to December. This is known as "Cycle Two" of the Pennsylvania Fire School. During this period four training courses are offered as follows:

1. Fundamentals of Fire Fighting (15 weekly 3-hour sessions. Total 45 hours).
2. Fire Service Extension Course (10 weekly 3-hour sessions. Total 30 hours).
3. Special courses for military, naval, ordnance depots (ten 3-hour sessions).
4. Fire Department Administration. For chiefs and chief officers (10 weekly 3-hour sessions. Total 30 hours).

Cycle Three consists of the same courses as Cycle Two and is conducted from March to June. The extension course mentioned above is given to those who have completed their fundamental training during the preceding cycle. Together the two courses give a total of 75 hours of fire service training. Refresher courses are instituted occasionally.

The following weekly lessons indicate the subject matter of the course on Fundamentals of Fire Fighting:

1. The Fire Service (Organization, Rules, Regulations, Courtesy, Duty, Teamwork).
   Fire Department Tools, Their Uses and Care.
   Forcible Entry Practices.
2. Purposes, Use and Care of Rope.
   Fire Department Knots and Hitches.
   Minor Fire Extinguishment Practices.
3. Ladder Practices (Design, Handling, Carries, Climbing).
4. Ladder Practices (Raises, Uses).
5. Ladder Practices (Hoisting, Anchoring, Care).
6. Hose Practices (Hose, Couplings, Nozzles and Accessories, Loads, Finishes).
7. Hose Practices (Layouts, Hydrant, Pumper, Nozzle Connections).
8. Hose Practices (Hose Line Manipulations).
9. Rudiments of Fire Streams.
   Elementary instruction related to the development of effective fire streams.
10. Fire Apparatus Practices.
11. Salvage and Overhaul Practices.
12. Salvage and Overhaul Practices (continued).
13. Fundamentals of Fire Fighting.
    Ventilation Principles.
14. Basic Practices of Fire Department Rescue Work. Gas Mask Instruction.
    Use and Care of Rescue Equipment.
    Final Written Examination.
15. Fire Department Inspections.
    General Review including discussion of examination.



THE course in Advanced Fire Fighting Techniques consists of classroom instruction and practical performance of evolutions related to the administration of a fire department or its divisions as follows: fire prevention and inspection techniques; advanced ladder practice; development and manipulation of all types of fire streams; theoretical and practical pump instruction; public and supplemental water supply; auxiliary fire protection; the chemistry of fire; special hazards; fire fighting strategy and tactics; advanced rescue procedures; laws and ordinances relating to the fire service.

Because of the large number of fire departments in the state, funds are not available to permit the establishment of classes for individual fire companies. Classes are organized from firemen representing three or more fire companies in the same or neighboring communities, and for not less than twenty-five nor more than thirty men. The ideal class is comprised of seven men from each of four representative fire companies. Classes are organized for members of less than three fire companies only when they are so widely separated as to make the usual combination impracticable. The applications must be signed by the president or fire chief of the fire companies requesting the training course.

The weekly classes are conducted at a centrally located fire station provided it is equipped with the necessary tools and apparatus for training purposes. Application for classes must be filed on the proper forms. Those for classes starting the first week in September must be received at the Public Service Institute not later than August 1, and for classes beginning in March the applications must be filed not later than February 1. Qualified instructors selected on the basis of their experience as fire fighters who have completed a training course conducted by the Institute, and regularly employed fire department instructors are employed to teach the classes. The Public Service Institute pays all costs for instruction with the exception of the training manuals which are purchased through the Firemen's Association of Pennsylvania, Mr. Charles E. Clark, Secretary, Box 271, Wayne, Pa.

Enrollment cards for each member of the class are mailed to the Fire School, 333 Education Building, Harrisburg, within two weeks after the first regular class session. An attendance record book, maintained by the instructor is mailed to the Fire School immediately following the termination of the course. Absence from more than four prescribed sessions disqualifies a member from further participation in the class or from receiving the certificate issued to each man who completes the course and successfully passes the final examination.

SUMMARY OF
FIRE SERVICE TRAINING CLASSES

1938–1943 (including 44 classes now in operation*)

Fundamental Course	354
Advanced Course	46
Military Posts	12
Ordnance Plant	8
Total	420
Total Enrollment	14,701
Certificates Issued	10,191

* Estimated certificates likely to be issued as a result of classes now in operation, 1,100.

WHERE IS THE NEAREST FIRE ALARM BOX?

INSTRUCTION CARDS PROMINENTLY DISPLAYED

in every building will inspire "Fire Consciousness" and proper action when fire occurs. Fire signaling facilities were never more urgently needed but scarcity of materials necessitates greater dependence upon existing boxes. Their prompt use for fire will conserve national resources.

for FIRE USE THE NEAREST BOX NO._____

AT_____

and wait for the Firemen

DO YOU KNOW THAT

600,000 fires occur annually in the U.S.A.

10,000 human lives are lost and

100,000 others are seriously injured and

$400,000,000 in property values plus the indirect losses creating a total waste in excess of One Billion dollars are annually destroyed by Fire.

70% of the fires—and life losses occur in dwellings.

43% of the commercial establishments destroyed do not rebuild, and the community loses prestige, business, payrolls, taxes and wealth.

50 times its original size is the spread of fire within 8 minutes after inception.

WHEN FIRE OCCURS—Use the Box IMMEDIATELY

Delayed Alarms are largely responsible for the excessive Fire Loss.

The Box Is Your Protection

THE GAMEWELL COMPANY

NEWTON UPPER FALLS MASSACHUSETTS

INDIAN

FIRE PUMPS *Enable Volunteer Firemen to Operate Efficiently with Limited Man-Power!*

Increase your supply of **Indian Fire Pumps** to offset operating with fewer men. Clear water **Indians** will handle 70% of your calls without laying hose. Now, more than ever, you need these great extinguishers. They go into action fast—do the job quickly, easily, completely. Just the thing for grass, rubbish, roof, building and all Class A fires. Order now for summer. **Indians** are the firemen's best friends.

(*Catalog on Request*)

G. B. SMITH & CO. 812 Main St. UTICA, NEW YORK

Fire Departments May Use OCD Auxiliary Apparatus

FIRE apparatus furnished to individual communities by the U. S. Office of Civilian Defense may be used "in connection with any fire appropriately requiring its use" according to a circular recently sent to Regional Directors of OCD by Harold W. Newman, Jr., OCD General Counsel. Many fire chiefs have hesitated to make full use of the OCD apparatus because of the wording of agreements under which the apparatus is loaned to municipalities. These agreements carrying out the provisions of an Executive Order from the President provide that the loaned equipment "shall not be used otherwise than for the protection of persons or property from bombing attacks, sabotage, or other war hazards, or for training or instruction incidental to such use."

There appear to be grounds by which the use of the OCD apparatus is justified according to the view of the OCD Legal Division. Fire departments, arriving at a fire, are not expected to wait until an arson squad has concluded a detailed investigation and announced "sabotage" before getting to work with OCD fire equipment. The auxiliary equipment should be used as needed on the chance that a fire may be due to sabotage. If subsequent investigation proves that this was not the case there will have been no harm done by putting out the fire promptly.

The OCD circular points out that many fire departments in planning for the utilization of the auxiliary apparatus to provide greater wartime fire safety have shifted the normal placement of regular fire department so as to give greater coverage. In such cases where regular apparatus is doing wartime work, it is only fair that OCD apparatus be used as needed to give the municipality more complete protection.

One of the strongest arguments advanced by OCD for the use of the auxiliary apparatus by fire departments is that such use in connection with fires not resulting from enemy action permits training and instruction of both volunteer civilian defense workers and regular fire fighting forces preparatory for enemy action. It has previously been ruled that the training of civilian defense workers includes services in disasters not related to enemy action such as fires and floods.

Thus there are at least three legitimate reasons for using OCD apparatus where needed for regular fire fighting work. First, the fire may later be found to have been due to sabotage. Secondly, its use permits a better distribution of the regular fire apparatus to give more adequate wartime fire protection to the community. Thirdly, the use of such apparatus is the best possible training to permit fire fighters to become fully familiar with this equipment so that it may be used most effectively in the event of fire due to enemy action.

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Makes the *Genuine* ROCKERLUG COUPLING with HIGBEE THREAD HIGBEE INDICATOR TAPERED STILL THREADS In brass or malleable iron, subject to Limitation Order 39.

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TRADE **ROCKERLUG** MARK
REGISTERED

COUPLINGS

★ Don't Gamble WITH SUBSTITUTES
★ Don't Gamble WITH HUMAN LIFE
★ Don't Gamble WITH PROPERTY DOLLARS
★ Don't Gamble WITH INEXPERIENCE

ACCEPT NO SUBSTITUTE

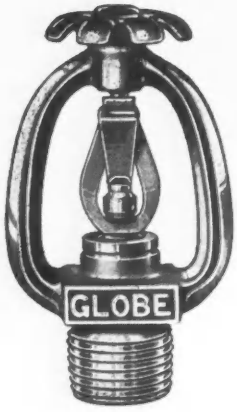
Our Trade Mark Protects You

AKRON BRASS MFG. COMPANY, INC. • WOOSTER, OHIO

AKRON BRASS

FIRE FIGHTING EQUIPMENT

Automatic Sprinklers
ARE YOUR
First Line of Offense



When Fire Strikes,

Automatic sprinklers place water directly on the seat of the flames regardless of smoke or similar conditions which hamper ordinary methods of fire fighting.

A GOOD RULE FOR FIGHTING FIRE IN A SPRINKLERED BUILDING

It is of vital importance to determine the cause of water flow from a sprinkler system before shutting off the water. Sprinkler control valves must not be shut until it has been positively determined that there is no fire or that the fire is OUT. Serious fires and severe losses have occurred in sprinklered buildings because the water was shut off before the fire was extinguished, allowing the flames to spread and get beyond the control of sprinklers.

GLOBE

AUTOMATIC SPRINKLER COMPANY
2035 Washington Avenue
Philadelphia, Pa.

OFFICES IN PRINCIPAL CITIES

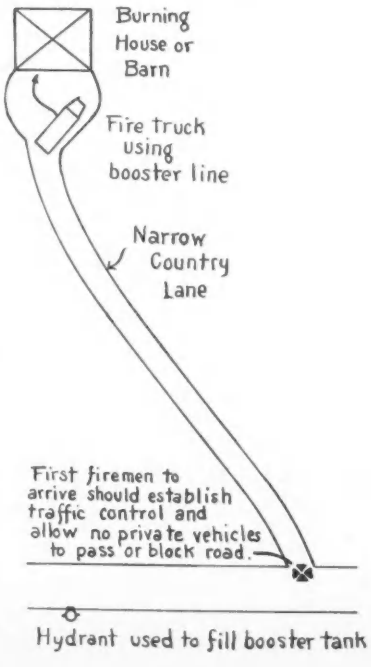
MAKING A GOOD JOB OF IT

BY WARREN Y. KIMBALL

CONTROLLING TRAFFIC AT COUNTRY FIRES

ALL of the difficulty with traffic at fires does not occur at busy intersections in the heart of town. Some of the worst "jams" of vehicles that firemen are likely to encounter in the performance of their duties take place on narrow winding country lanes leading to a burning barn or farm house. Similar difficulties may be encountered on roads leading to congested summer resort and cottage areas. Firemen must be prepared for traffic trouble when an alarm is received from any remote location. Experience has shown that spectators attracted by the smoke or glare of a fire are likely to reach the fire area before the fire truck arrives. Such persons invariably drive as near to the fire as possible and then abandon their machines without regard for the fact that they are blocking the only means of access for the fire apparatus.

At country fires the firemen cannot expect that there will be an adequate police detail on hand early enough to prevent spectators from getting in the way of the fire department. Accordingly, it is well for the fire department to make plans in advance to assure the right of way for the fire apparatus at any locations where traffic stoppages may be anticipated. In some cases it may be found that the most useful thing that a volunteer fireman, who arrives early on the scene, can do will be to keep a traffic lane clear for the fire apparatus.


Burning House or Barn
Fire truck using booster line
Narrow Country Lane
First firemen to arrive should establish traffic control and allow no private vehicles to pass or block road.
Hydrant used to fill booster tank

When a fire is located at the end of some private lane just wide enough for one vehicle and without space for turning of machines, no private vehicles should be allowed to use the lane. It may even be necessary to refuse entrance to the private cars of individual firemen. One improperly placed private machine, for example, may prevent the fire department from setting up a needed pumper relay. It may make it impossible to replenish the booster tanks of apparatus fighting the fire by making it impossible to drive the apparatus back to a hydrant or by blocking the passage of vehicles which might carry water to apparatus working at the fire.

While the shortage of gasoline may temporarily curb the temptation of many persons to chase to fires, wartime has aroused more interest in fire fighting operations than ever before. Not only do the auxiliary firemen consider the sounding of the fire siren as a call to duty, but numerous auxiliary police, air raid wardens, canteen workers, fire watchers, messenger corps members, and first aid crews, look upon a fire as a chance to pin on the arm band that is the symbol of their authority and show the home town folks that they are on the job. Thus there are likely to be many "official" or "emergency" vehicles trying to reach the scene of a fire.

Among the steps that might be taken by a fire department to control traffic near fires are:

1. The enforcement of an ordinance preventing private vehicles from following within three hundred feet of a piece of fire apparatus or parking within six hundred feet of a fire.

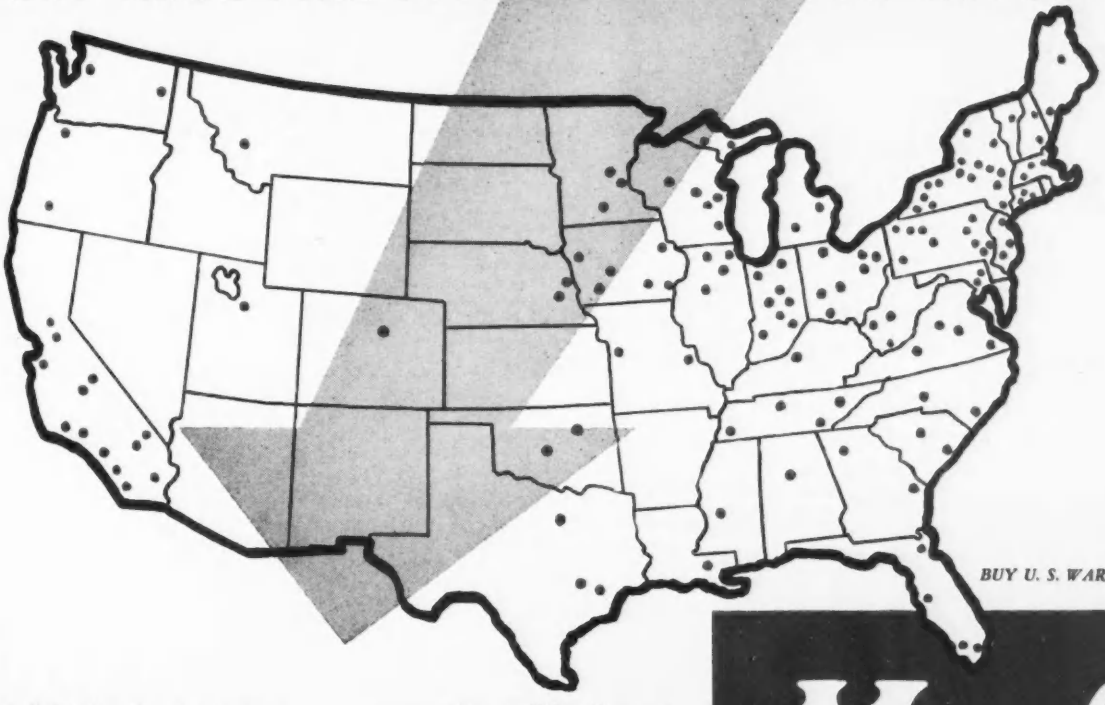
2. Establishment of fire-police recruited from older members of the fire department. These men would be empowered to enforce the provisions of the traffic code relating to obstruction of the right of way of fire apparatus, parking near fires or fire hydrants, private vehicles running over hose lines, and the control of traffic at fires. These police should have suitable insignia and should be equipped with lights and flares for control of night traffic.

3. The co-operation of civilian defense authorities should be enlisted in keeping civilian defense personnel out of the way of fire fighting operations unless their help has been specifically requested. Civilian defense personnel should respect regulations controlling traffic at fires which occur under normal conditions.

4. The co-operation of the regular police authorities should be sought to work out in advance plans for adequate traffic control for any fires that may occur.

200 GOOD REASONS

WHY MACK FIRE APPARATUS STAYS ON THE JOB...



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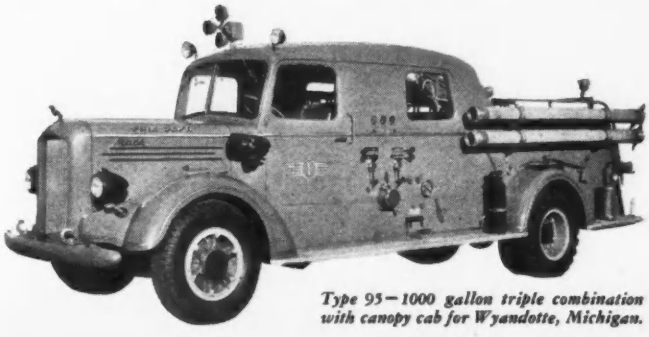
It takes the industry's greatest engineering and manufacturing resources to build a Mack.

Our policy has always been to provide also the industry's best service facilities so that what we build into every Mack can be used to the best advantage.



Type 95—1000 gallon triple combination with canopy cab for Wyandotte, Michigan.

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FIRE APPARATUS

Although we are working night and day to produce military equipment—we can also build and deliver highest quality Mack Fire Apparatus to communities which need it.

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MACK MANUFACTURING CORPORATION
FIRE ENGINE DIVISION
LONG ISLAND CITY, N. Y.

ANNUAL

1. One of the highlights of the 1943 N.F.P.A. Annual Meeting was the Fifth Annual Volunteer Firemen's Forum held at the Palmer House, Chicago, on May 11th. Each succeeding Volunteer Firemen's Forum has proved to be of increased interest to the fire department members attending the convention. This year, close to two hundred firemen and other fire officials interested in the volunteer fire service attended the forum. A number of significant papers were presented and these will be covered either in the Proceedings of the Annual Meeting or will be the subject of future articles in VOLUNTEER FIREMEN. When this picture was taken Chief Harry K. "Smoky" Rogers was addressing the forum on the subject of "Salvage Hints for Volunteer Fire Departments."

2. These men participated in the Forum program. Left to right: R. D. MacDaniel, Vice-President of the Grain Dealers National Mutual Fire Insurance Company, who offered a number of valuable suggestions for fighting fires in country grain elevators; Chief Harry K. "Smoky" Rogers, in charge of firemen's training for the Western Actuarial Bureau; Warren Y. Kimball, N.F.P.A. Engineer and Editor of VOLUNTEER FIREMEN; Lieutenant Harry Wolff, Chicago Fire Department, who gave an illustrated talk on his experiences in training volunteer firemen in communities near Chicago; Charles S. Morgan, N.F.P.A. Engineer and Advertising Manager of VOLUNTEER FIREMEN; Chief George L. Chain, of Bushnell, Illinois, who described the fire prevention program of his department which has resulted in an 18-month period without a fire loss; and Richard E. Vernor, Vice-President of the N.F.P.A. and Manager of the Fire Prevention Department of the Western Actuarial Bureau who presided at the Forum. "Dick" Vernor is known to firemen throughout the United States as chairman of the Annual Fire Department Instructors' Conference, held at Memphis each January. The magic of his genial personality was a guarantee of success for the Forum.

3. Chief Peter Steinkellner of the Milwaukee Fire Department, Director, International Association of Fire Chiefs, who addressed the Municipal Fire Defense and Civilian Protection Forum on the subject: "Problems of Fire Department Operation in Wartime." Members of the large audience attending this session were much impressed by Chief Steinkellner's report of fire protection accomplishments in the Milwaukee County area despite wartime handicaps. For example, the number of trained industrial fire brigades in the County has been increased more than ten-fold since the United States entered the war.

4. "Among those present": Commander J. L. Steinmetz, U.S.C.G., Commanding Officer of the Coast Guard Training Station at Fort McHenry, Baltimore; Fred B. Watkins, former State Fire Marshal of West Virginia; Lieutenant-Commander Lloyd Layman, former fire chief at Parkersburg, W. Va., now in charge of training Coast Guard fire fighters at Fort McHenry; Colonel Clarence Goldsmith, Executive Secretary, Advisory Committee on Civilian Fire Defense, U. S. Office of Civilian Defense; N.F.P.A. Chief Engineer Horatio Bond, recently returned from four months in England, who gave an account of his personal experiences at the opening session; and Roi B. Woolley, U. S. Office of Civilian Defense, who addressed the Fire Marshals' Section on "Developments in Mutual Aid."

5. One of the most interesting features of the N.F.P.A. Annual Meeting was the visit to Underwriters' Laboratories, Inc., which occupied one afternoon of the four-day meeting. The tour of the Laboratories opened with a fire extinguishing demonstration at the outdoor testing station adjacent to the Laboratories' building. One of the new developments shown was the application of "fog-foam" for the extinguishment of flammable liquid fires. A spray-type applicator, similar to that used with water fog, was used to blanket the fire with foam. An Underwriters' Laboratories engineer is shown applying fog-foam to an open tank of burning fuel oil.

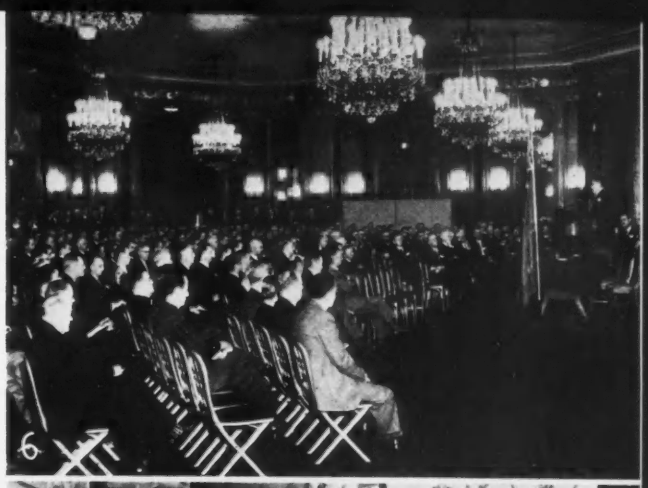
MEETING

6. Nearly a thousand members and guests filled to overflowing the Red Lacquer Room of the Palmer House in Chicago to hear Major General Ulysses S. Grant, 3d, Chief of the Protection Branch, U. S. Office of Civilian Defense. General Grant spoke on "Fire Protection Activities of the U. S. Office of Civilian Defense."

7. Participating in the Municipal Fire Protection and Civilian Defense Forum: George W. Elliott, Secretary, Philadelphia Chamber of Commerce, who presided; George J. Richardson, Secretary, International Association of Fire Fighters, whose talk "Manpower and the Fire Service" focused nation-wide attention on the manpower shortage in the fire service; Major General Ulysses S. Grant, 3d, of OCD; Percy Bugbee, N.F.P.A. General Manager; Chief Peter Steinkellner of Milwaukee; Dr. David J. Price, President of the N.F.P.A. and Principal Chemical Engineer, Bureau of Agricultural and Industrial Chemistry, U. S. Department of Agriculture; and B. M. Doolin, Manager of the San Francisco Municipal Airport, who fascinated the audience with his address on the timely and important subject "Fighting Airplane Crash Fires." Mr. Doolin described his experiences in snuffing out airplane crash fires by means of low pressure carbon-dioxide and impressed his listeners with effectiveness of this recently developed method.

8. Two of the most popular sessions of the meeting were the Inspectors' Forum on Wednesday evening and the Army and Navy Fire Protection Session on Thursday morning, May 13th. These were closed sessions at which members registered to gain admittance to the meeting room. The Inspectors' Forum presented an opportunity to those present to question experts (off the record) regarding all phases of industrial fire protection. The panel of experts consisted of R. E. Wilson, of the National Bureau for Industrial Protection; Colonel Carl G. Richmond, of the Office of the Provost Marshal General; M. S. Blake, of the Bethlehem Steel Co.; and J. T. W. Babcock, of the Western Factory Insurance Association. The Thursday morning session on Army and Navy Fire Protection was marked by addresses of officers representing all branches of the armed forces. The photograph shown here was taken during the address of Lieut. Commander Harold J. Burke, U.S.N., former Chief of the Marine Division of the New York Fire Department and now in charge of training Navy fire fighters. Others shown on the platform are: Percy Bugbee, N.F.P.A. General Manager; Richard E. Vernor, N.F.P.A. Vice-President, presiding; Colonel George J. B. Fisher, Chief of the Civilian Protection Branch of the Chemical Warfare Service, who described new types of incendiary bombs and their effects; Colonel A. B. Johnson, Chief of the War Production Security Branch, Internal Security Division, Office of the Provost Marshal General, who described the War Department's Internal Security Program; Colonel Crosby Field, Chicago Ordnance Department, who talked on "Explosion Prevention in Ordnance Plants"; and Lieut. Colonel Max C. Dice, Chief of the Internal Security Section, Army Air Forces, who spoke on "Fire Prevention in the Army Air Forces." Also participating in the session were Captain W. H. Derby, U.S.C.G., District Coast Guard Officer of the 1st Naval District, who described the Coast Guard fire safety program; and Lieut. Commander Harold K. Hughes, U.S.N., who address was entitled "Safeguarding the Navy's Shore Establishments Against Fire."

9. Another view of the demonstration at Underwriters' Laboratories, Inc. Here we see a small portable pump manufactured by the Pacific Marine Supply Co. of Seattle supplying a stream of mechanical foam. The pump is taking suction from the small cistern shown at the right of the nozzle. The foam is developed by use of a special nozzle which draws National Aer-O-Foam liquid from a 5-gallon container. In the left foreground may be seen a pressure proportioner manufactured by National Foam System, Inc. The proportioner containing Aer-O-Foam liquid is designed to mix water and foam liquid in the proper proportion to provide a foam stream.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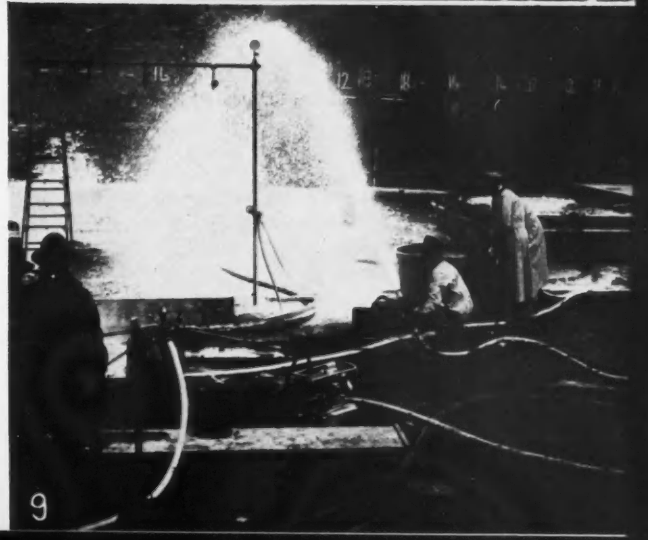
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THE MOST POWERFUL portable pumper ever built for its weight and size. Embodies improvements made possible only through years of specialized engineering and thousands of actual usage tests. Proved by Government Agencies. Base 24 inches by 12 inches; height 13 inches; net weight, complete, ready to operate, 70 pounds.

CAPACITY

Pressure	100	125	150	175	200	225
Gals. per Min.	63	59	53	46	40	20

FREE MAIL TODAY **PACIFIC MARINE SUPPLY CO.**
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Please send me a copy of the new revised edition of "FIGHT FIRE WITH WATER" and a copy of your Portable Pumper Folder.

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STREET.....

CITY AND STATE.....

Our Readers Say—

"May I express to you my congratulations on the splendid improvement in VOLUNTEER FIREMEN magazine. It is improving in every issue."

T. ALFRED FLEMING,
Director of Conservation,
National Board of Fire Underwriters.

"Enclosed you will find our check in the amount of ten dollars for the renewal of our subscription or membership in your Association.

"Membership in your organization has been indeed an asset to our department throughout the past year, and we sincerely appreciate the interest you have shown in us, and the wealth of instructive and helpful material you have sent us. Our department is rather small and our financial ability is rather limited, therefore we find we cannot subscribe for our total membership at present. However, all members have an equal opportunity to the magazines and other materials you send us. With best wishes for the continued success of your organization."

A. R. THACKER, *Secretary-Treasurer*,
Scottsville Volunteer Fire Department,
Scottsville, Virginia.

"Just a word to tell you how enthusiastic I was upon receiving the April issue of the VOLUNTEER FIREMEN in its enlarged and improved set-up and the added feature of being mailed flat without a fold. Congratulations, the magazine, I feel, is to be the fountain of information for the volunteer firemen and will continue to grow in size as the membership of the association enlarges. Every opportunity I keep telling our companies the advantages of being a member and receiving the publications and am always pleased when I look over the new members every month that another company has joined the ranks."

WM. E. (BILL) WUNDERLICH,
Financial Secretary,
Delaware County Firemen's Association
of the State of Pennsylvania.

"I had an amusing incident happen to me yesterday and one I thought you would enjoy hearing about. I went down to the Customs to clear the copies of VOLUNTEER FIREMEN which you so kindly sent for distribution at the Firemen's Training School at Kingston this week. Despite a long line of people behind and around me, I experienced a considerable delay in getting approval by the Customs Appraiser by his genuine interest in the contents of the magazine.

"As you possibly are aware, parcels entering Canada must be opened for customs inspection and such usually consists of a rapid examination of the parcel's contents for appraisal purposes only. However, the contents of the magazine was of such interest to the gentleman making the inspection that he took the time to read almost the entire issue of the April VOLUNTEER FIREMEN before finally declaring, 'This parcel should most certainly enter the country free of duty — why it's actually educational.' Thinking he may have, perhaps, missed something of interest, I left with him, for more leisurely reading, samples of the issues in the parcel.

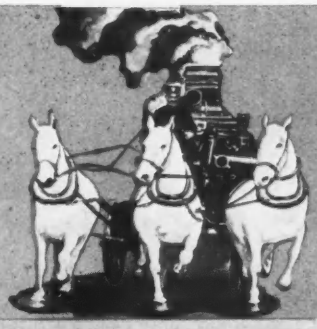
"I think you have achieved the acme of perfection and received the ultimate mark of distinction when a cold-blooded customs officer will recognize the true worth of VOLUNTEER FIREMEN."

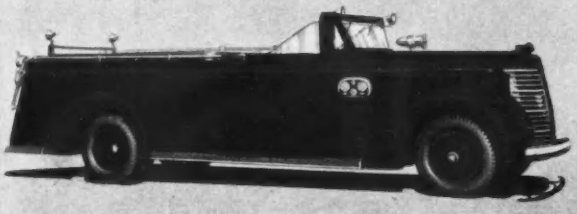
L. C. ANDERSON,
Fire Prevention Engineer,
Parliament Buildings, Toronto, Ontario.

The Leadership of AMERICAN-LAFRANCE* is a Tradition of the Fire Service

YESTERDAY

You bought AMERICAN-LAFRANCE fire engines for the reliable performance that established their leadership and made them the standard of the fire service.





TODAY

You buy AMERICAN-LAFRANCE fire engines and equipment for their reliability, modern appearance, utility, and the service facilities that have contributed to traditional leadership.

TOMORROW

You will buy AMERICAN-LAFRANCE fire engines and equipment for those same qualities that have proved our leadership in reliability, performance, utility and styling in keeping with practical fire fighting.

* LAFRANCE-FOAMITE in Canada

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ELMIRA, NEW YORK, U. S. A.
LAFRANCE FIRE ENGINE-FOAMITE LIMITED
TORONTO, 9, ONTARIO, CANADA

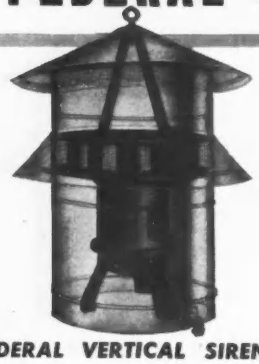
Do not wait till tomorrow to instruct your Fire Chief to attend the I.A.F.C. Conference in Chicago, Aug. 31 - Sept. 3. He will gain valuable information on the latest methods for protecting your community against fire.

On Guard
-WHEREVER DUTY CALLS!
The Streamlined
M·S·A
FIREMAN'S HELMET

This favorite modern Helmet has what it takes to meet the fireman's new head protection demands! Laminated bakelite, one piece molded, provides tremendous resistance to impact — the Helmet can't soften from exposure to water, grease, heat or common chemicals — supplies balanced comfort and wearing ease through long hours of emergency duty. Write for Bulletin No. DX-5!

MINE SAFETY APPLIANCES CO.
BRADDOCK, THOMAS AND MEADE STREETS,
PITTSBURGH, PA.
District Representatives in Principal Cities

FOR *Assured* AIR RAID PROTECTION
INSTALL THE
FEDERAL WARNING SYSTEM



The system that gives full protection regardless of weather, topography, and local noise levels.

FEDERAL experience in air raid warning systems goes back to the early days of the war, when our engineers went to Europe and proved our system under actual air raid conditions. Since that time our engineers have made installations in many American cities —installations that have proved their effectiveness in test after test.

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- All-weather performance.
- Full-spread sound radiation.
- Easy installation.

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8717 So. State St. Chicago, Illinois

WPB Order on Motor Fire Apparatus Purchases

THE War Production Board during April issued a revised Limitation Order L-43 on motorized fire apparatus. Fire departments desiring to purchase apparatus are advised to secure a copy of this order. Correspondence concerning it should be addressed to the Safety and Technical Equipment Division, War Production Board, Washington, D. C.

In order to secure authority to purchase any apparatus, application must be filed in quintuplicate on Form PD556, including in detail the reasons why the apparatus applied for is needed, and the application cannot be processed unless a full statement is made.

The revised order, like the previous order issued in February, 1942, limits apparatus to certain standardized types and prohibits any manufacture (except on special appeal) of various types of apparatus including service ladder trucks, squad cars, salvage cars, rescue cars, hose trucks and closed body apparatus.

Pumpers are restricted to 500, 750 and 1,250 g.p.m. capacity rating, with the 1,250 limited to special cases. Pumpers must have a booster tank. The tools and equipment permitted are restricted to a standardized list specified by WPB. Brass bells are prohibited and the use of various critical materials is restricted to the minimum necessary for the proper functioning of the apparatus. Centrifugal pumps only are permitted.

Canadian Fire Equipment Conservation Order

UNDER Administrator's Order A-673 of the Wartime Prices and Trade Board, issued to conserve critical metals, a number of restrictions have been imposed affecting fire equipment. The restrictions were promulgated following a conference with leading fire officials of the Dominion including Chief A. E. Woods, president of the Dominion Association of Fire Chiefs; Fire Marshal W. J. Scott, of Ontario; Fire Commissioner E. Lavigne, of Quebec; and A. C. Anderson, of the Ontario Fire Marshal's Office.

One provision of the order prohibits the manufacture or supplying of brass couplings for fire hose except for ships or for plants manufacturing explosives or flammable liquids or gases. The malleable iron couplings developed by Underwriters Laboratories as to be substituted.

The order permits municipal fire departments to purchase foam extinguishers and a limited number of loaded stream extinguishers are made available. Carbon dioxide extinguishers may be purchased only under permit. By provisions of the order the manufacture or sale of fire extinguishers is limited to approved types as tested and listed by Underwriters' Laboratories, Inc., The Underwriters' Laboratories of Canada, the Factory Mutual Laboratories, or the Canadian Engineering Standards Assn.

It's no good if he doesn't know how to use it!

• It's an odds-on bet . . . sometime soon one of your men will face a fire, armed with one of your extinguishers.

Will he know what to do? Will this man in your plant know what kinds of fire this extinguisher should be used against? Does he know how to make it work?

There is one sure way to control blazes in your plant—fast and sure-handedly. Teach key men how to handle fire . . . how to handle fire-fighters. *Stage demonstrations. Show these men how extinguishers behave under fire.* We can help you do it.

A new Kidde handbook—"How to Teach Fire-Fighting"—tells how to stage a fast-moving, interesting, instructive demonstration of extinguishing methods. Send for your copy. Walter Kidde & Company, Inc., 649 Main St., Belleville, N. J.

Kidde PROTECTS LIVES

HIGH PRESSURE GASES • FIRE PROTECTION

THIS ADVERTISEMENT IS ONE OF A SERIES APPEARING CURRENTLY IN INDUSTRIAL PUBLICATIONS

Notes from the Training Field

Connecticut Plans Third Annual Fire College

THE Third Annual Fire College will be held at Wesleyan University, Middletown, June 7th–10th. The Fire College is conducted by the Connecticut Fire Department Drillmaster's Association in cooperation with the State Department of Education.

Illinois Fire College Scheduled This Month

THE slogan for the Nineteenth Illinois Fire College to be held at the University of Illinois, June 8th–11th, is "A Mobilized Fire Service for Victory." This year the Civil Protection Division, State Council of Defense is cooperating in the program. The Illinois Fire College is one of the oldest continuous fire colleges in the United States. Prof. L. H. Provine, of Urbana, is Director and Roy W. Alsip, of Champaign, is Secretary.

Iowa to Hold Nineteenth Annual Fire College at Ames

THE Nineteenth Annual Fire College is to be held June 21st–25th, at Iowa State College, at Ames. The program planned for the fire school is to be related directly to the war time needs of Iowa Fire Departments, many of which are undermanned due to the loss of experienced men to the Army and to war industries. Early morning and evening sessions will be devoted to discussion of fire defense problems by Nationally known leaders. The remainder of the program will be given to specialized classes of practical instruction on important phases of the fire department job.

The fire school program will include a conference for chief officers, a school for fire department instructors and a school for men wanting training as instructors. There will also be a school for firemen, which will deal with forcible entry and minor extinguishment practices, ladder practices, and hose practices. There will be a pump operators' school.

Firemen of Wright County, Iowa Have Training Program

FOLLOWING the State Instructor Training Sxhools, the Firemen of Wright County decided to combine forces for an intensive training course including both practical drill evolutions and defense instruction.

Chief E. E. McCallum, of Eagle Grove, State Fire Department Instructor, is directing the program which started at Eagle Grove on April 1st. Lindon J. Murphy, Regional Fire Defense Advisor of OCD, participated with a discussion of new types of incendiary bombs. Fire defense films were included in the program.

Teacher-Training Classes Held in Missouri

ACCORDING to a report by Capt. W. Bush Walden, State Department of Education, Jefferson City, instructor training classes have been held in nine cities and towns with a total attendance of 173 men interested in firemen's training.

Chief Muenster Reports on Instructor Training in OCD Region 8

CHIEF R. O. Muenster, of Luling, Texas, Fire Defense Advisor for OCD Region 8, including the states of Arkansas, Louisiana, Oklahoma, New Mexico, and Texas, reports the following accomplishments for the fire instructor training program recently conducted in that area:

Arkansas. John E. Hurley, of the Little Rock Fire Department, and Capt. Eustace W. Sewell, of the El Dorado Fire Department, were qualified as fire department instructors. Plans are being made for instructor training conferences in eleven Arkansas cities.

Louisiana. Andrew Broussard of Lafayette, Gerald D. Sumners of New Orleans, J. N. Norwood of Baton Rouge, William J. Cook and Earl J. Norred of Shreveport, were all qualified as teacher-training instructors. These men conducted seven district schools at which they trained fifty-two instructors.

Oklahoma. J. Perry Norris of Oklahoma A. & M. College, and Assistant Chief Everett E. Hudiburg of Stillwater were qualified as fire department instructor-trainers. They have already conducted sixteen classes and plans have been made for fourteen additional classes.

Texas. A. H. Davis of El Paso, J. R. Dickhout of Dallas, A. L. Rathke of San Antonio, Ruie Akin of Beaumont, and Robert Dobson of Corpus Christi were qualified as instructor-trainers. These men have conducted twenty-one district schools and have trained 444 fire department instructors.

OCD fire defense officials were unable to get any representative from the state of New Mexico to attend the instructor training conferences. These conferences are part of a nation-wide, war-time program to make it possible for each fire department to have a sufficient number of qualified drillmasters ready to train both firemen and auxiliaries in fire defense measures.

GIFT FOR FIREMEN

Members of the Takoma Park (Md.) Lions Club recently presented a resuscitator to the Takoma Park Volunteer Fire Department. Shown above at the presentation ceremonies are Judge R. G. Shure and President Wm. McCeney, Jr., of the Lions Club and Chief M. E. McBride and Capt. Herald Hirst, of the fire department. The photographer on this occasion, Mr. Henry E. Marschalk, writes that he, himself, has been an active volunteer fireman for more than ten years and has a file of every copy of "Volunteer Firemen" beginning with the first issue.

Pennsylvania Fire School's Annual Conference Moving to Lewistown

ARTHUR W. ESPEY, Director of the Fire School, Public Service Institute, Harrisburg, announces the Fifth Annual Pennsylvania Firemen's Training Conference. Because of the demands of the Army and Navy the facilities at the Pennsylvania State College, where the first four conferences were conducted, are not available this year. Through the cooperation of Chief A. Nelson Yearick, of the Lewistown Fire Department, the Conference will be held at Lewistown, August 15th–21st.

Lewistown owns an enviable complement of fire fighting apparatus which includes several ambulances and a lighting truck. This equipment will materially benefit the intensive fire service training program. Classrooms and the auditorium in the Lewistown High School and the facilities of the Lewistown Vocational School will be utilized. A drill tower, smoke house for practical gas mask training, and excellent provisions for pumping operations will also be available.

This year's fire school will be referred to as "The Victory Conference." Trainees will be enrolled for the type of training that specifically applies to their respective fire fighting duties. All applications for enrollment should be made through Charles E. Clark, Secretary of the Pennsylvania State Firemen's Association and the Eastern Association of Fire Chiefs, Box 271, Wayne, Pa. Sunday, August 15th, is registration day. The conference will conclude on Saturday, August 21st.

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for protection against fire hazard

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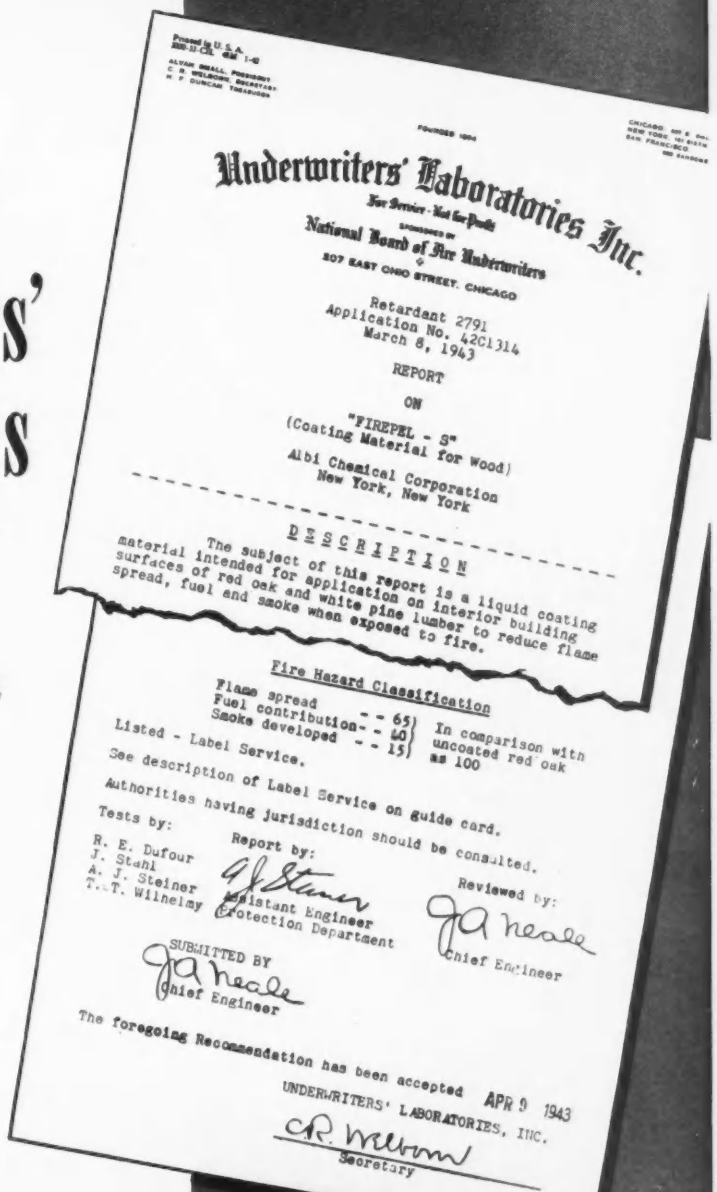

Underwriters' Laboratories Inc.

For Service - Not for Profit

National Board of Fire Underwriters

207 EAST OHIO STREET, CHICAGO

Retardant 2791
Application No. 42C1314
March 8, 1943

REPORT

ON

"FIREPEL - S"
(Coating Material for Wood)

Albi Chemical Corporation
New York, New York

DESCRIPTION

The subject of this report is a liquid coating material intended for application on interior building surfaces of red oak and white pine lumber to reduce flame spread, fuel and smoke when exposed to fire.

Fire Hazard Classification

Flame spread - - 65
Fuel contribution- - 40
Smoke developed - - 15
In comparison with uncoated red oak as 100

Listed - Label Service.

See description of Label Service on guide card.

Authorities having jurisdiction should be consulted.

Tests by:
R. E. Dufour
J. Stahl
A. J. Steiner
T. T. Wilhelmy

Report by:
A. J. Steiner
Assistant Engineer
Protection Department

Reviewed by:
J. A. Neale
Chief Engineer

SUBMITTED BY
J. A. Neale
Chief Engineer

The foregoing Recommendation has been accepted APR 9 1943

UNDERWRITERS' LABORATORIES, INC.
C. R. Wilmot
Secretary

WHY JOIN THE N.F.P.A.?

That's a reasonable question, and here's the answer!

N.F.P.A. membership brings you up-to-the-minute authoritative information on fire and fire protection. In a war of fire, that is the basic reason for joining the N.F.P.A. Membership marks you as a progressive, thinking fire department, not content to just drift along and depend upon chance for your professional news and technical information. In these days of rising costs and reduced dollar value, N.F.P.A. membership is one of the biggest bargains you'll find anywhere. Fire department members who joined one year ago have received nearly $30.00 worth of books, magazines, and pamphlets for their $10.00 annual dues.

Here is a partial list of what they got:

VOLUNTEER FIREMEN
(10 subscriptions for 12 months)
N.F.P.A. Quarterly
(1 subscription for 12 months)
Monthly News-Letter
(up-to-date information)
Nat'l Fire Codes for Extinguishing & Alarm Equipment
National Fire Codes for the Prevention for Dust Explosions
Proceedings of Annual Meeting
Training Manual for Auxiliary Firemen
Training Manual for Industrial Fire Brigades
Volunteer Fire Departments
Fire Department Organization
National Defense Fires
Fires in One Year of War
Normandie Fire Report
Cocoanut Grove Fire Report
Conflagrations in America
Fire Record of Cities
The Boston Wool Fire Report
Preventing Cutting & Welding Fires
Table of Hazardous Chemicals
Water Spray Protection
Bldg. Construction Fire Tests
Trucks for Auxiliary Fire Apparatus
Synthetic Rubber (Processes & Hazards)
Fire Retardant Treatments for Wood
Several New N.F.P.A. Standards
Fire Prevention Week Supplies
Numerous Leaflets and Posters

JOIN NOW!

National Fire Protection Assn.
60 Batterymarch St.
Boston, Mass.

MEMBERSHIP REPORT

N. F. P. A. Volunteer Firemen's Section

Every member receives a handsome membership certificate illustrating the history of fire protection.

MEMBERSHIP PLAN

- Through the Volunteer Firemen's Section, fire companies may become N.F.P.A. members. Each member fire company is entitled to have VOLUNTEER FIREMEN magazine sent to the homes of ten firemen.
- As a member, the fire company receives at headquarters a set of all other regular N.F.P.A. publications. This includes the QUARTERLY MAGAZINE and monthly NEWS LETTER.
- Membership in the National Fire Protection Association costs ten dollars per year. If more than ten firemen want to receive the magazine, an additional one dollar should be sent for each fireman in excess of the first ten enrolled.

THE number of volunteer fire companies in the Section now stands at 820. This is the first time that the enrollment has passed the 800 mark. Individual firemen in the section have now reached a total of 16,050 which is the highest in the history of the section. Last month 21 departments were enrolled as listed below.

Atascadero Volunteer Fire Department, Atascadero, Calif.
Vernon Fire Department, Vernon, Calif.
Post Engineer, Fort Oglethorpe, Ga.
Savanna Ordnance Depot, Proving Ground, Ill.
University of Illinois, Urbana, Ill.
Iowa Falls Fire Department, Iowa Falls, Iowa.
Corinna Fire Department, Corinna, Maine.
Allegany Ordnance Plant, Cumberland, Md.
Harvard University Auxiliary Fire Department, Cambridge, Mass.
Leonia Volunteer Fire Department, Leonia, N. J.
Hobbs Volunteer Fire Department, Hobbs, N. M.
Copiague Fire Department, Copiague, N. Y.
East Hampton Fire Department, East Hampton, N. Y.
Sherman Fire Department, Sherman, N. Y.
Berlin Community Volunteer Fire Company, Berlin Heights, Ohio.
Huron Volunteer Fire Department, Huron, Ohio.
Barrett Township Volunteer Fire Company, Buck Hill Falls, Pa.
National Forge and Ordnance Company, Irvine, Pa.
Pierre Fire Department, Pierre, S. D.
Kingwood Volunteer Fire Department, Kingwood, W. V.
Waterloo Active Company, Waterloo, Wis.

This rubber shortage sure has our firemen in a heck of a jam!

Opening a portable carbon dioxide fire extinguisher valve used to be a rather slow operation. First the portable was set down; the valve hand-wheel was turned to the open position, the portable then picked up and the gas directed at the fire. Now, C-O-TWO has changed all that.

NEW SQUEEZ-GRIP SAVES GAS AND TIME

No need to set the extinguisher down to open a C-O-TWO Squeez-Grip valve; even while carrying the cylinder the valve is easily opened or closed. Nothing to do but squeeze the control lever, over the carrying handle. The valve is opened just as fast as you can close your hand. Fire is out in split seconds—there will be no damage to materials or equipment. Now more than ever, C-O-TWO is Safer because it's Faster.

C-O-TWO is a registered trademark and corporate name of this company. C-O-TWO is inspected and labeled by the Underwriters' Laboratories; approved by Factory Mutuals and the Bureau of Marine Inspection and Navigation. To be safe specify C-O-TWO.

C-O-TWO FIRE EQUIPMENT COMPANY

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Sales and Service in the Principal Cities of United States and Canada

PROTECT
VITAL MANPOWER
WITH
THE EMERSON RESUSCITATOR

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With the Army in the field, our manpower is being protected from unnecessary asphyxial deaths by the Emerson Resuscitator. Let it do the same thing for your community on the home front.

WRITE FOR LITERATURE OR A DEMONSTRATION

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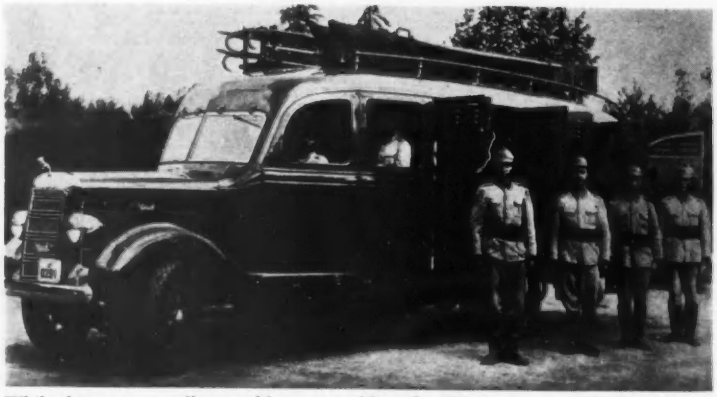
Cambridge, Mass.
Representatives in Principal Cities

SOME INTERESTING NEW FIRE APPARATUS

Probably the most completely equipped and certainly the most up-to-the-minute fire department emergency truck in the United States is the above new "Airmatic Task Unit" of the Cincinnati Fire Department. This new "rescue truck" manufactured by the Seagrave Corporation, Columbus, Ohio, carries an inventory of some 328 items of emergency equipment conveniently arranged in 23 separate compartments. It is, of course, impossible to list here all of the equipment which includes an Ingersoll Rand two-stage air compressor with two reels of air hose, air saws, hammers, jack hammer and complete accessories. There are 4 McCaa oxygen breathing outfits, 4 all service gas maks, 4 rubber suits, hoods and gloves, 3 H & H Inhalators and 1 E & J Resuscitator, a Homelight generator with 500 watt and 250 watt lights, an M.S.A. explosion meter, and a kit for handling refrigerator leaks. As an indication of the completeness of equipment, there are even 5 bathing suits and 6 turkish towels provided. The truck has a 12-cylinder motor and is equipped with 2-way radio.

This pumper was built and equipped by the maintenance and engineering department at General Electric's River Works at Lynn, Mass. The pump is powered by a used 8-cylinder 95 h.p. automobile engine and is capable of delivering 1200 g.p.m. One outlet from the pump supplies the turret nozzle, two outlets provide for standard hose connections, and a fourth can be directed through a foam generator for fighting oil fires. The pumper is part of the plant's own fire department.



While the war rages all around her, neutral but alert Turkey prepares for fire attack. Pictured above is one of Istanbul's emergency fire trucks manufactured by Mack Trucks, Inc., in America and purchased by the Turkish government. The trucks are equipped for emergency fire detail, and each special Mack carries a crew of 15 men.

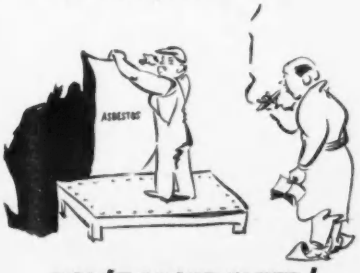
Understanding Heat

Continued from Page 6

more water will flow through a large pipe than through a small one under the same pressure, so more heat will flow through a large path of heat conductance than through one of small area, assuming again that the temperature difference is the same. The factor of temperature in the flow of heat may be likened to the factor of pressure in the flow of water.

Heat cannot be completely stopped by any heat insulating material, and in this respect the flow of heat is unlike the flow of water, which can be stopped by a solid barrier. Heat insulating materials are those which have a low heat conductivity. Heat flows through them slowly, but no amount of heat insulation can actually stop the flow of heat; it only delays it. This fact should be remembered in devising protection against stoves, hot pipes or other sources of heat which might ignite near-by woodwork. Filling the space between the source of heat and the combustible material solidly with insulation is not sufficient to prevent ignition, no matter how thick the insulation. If the heat continues for a sufficient length of time to flow through, and if it does not somewhere escape, it will eventually build up the temperature of the woodwork. For this reason there should always be an air space or some way of carrying the heat away rather than relying solely on heat insulating material to protect exposed woodwork. Fires have occurred by transmission of heat over a long period through as much as a two-foot thickness of solid concrete.

For the Smoker-in-Bed Here's a gadget real neat: A cast-iron mattress And a fireproof sheet.



DON'T SMOKE IN BED!

The Federal Public Housing Authority is concerned with preventing needless fires in buildings under its control. Smoking in bed is a leading cause of residential fires and a cause which is not only responsible for property damage but is a leading cause of loss of life. Thus Safety Poster No. 1 issued by the Authority appropriately deals with this hazard.

You Can Still Get

MIDWESTERN
PROTECTIVE CLOTHING

Your Job Is Vital!

Your job of saving life and property on the home front is essential — and the War Production Board so considers it. Of course, the needs of men in the armed services come first but most of our catalog items can still be shipped with little or no delay. However, we do advise that needed garments be ordered as far ahead as possible.

Midwestern
SAFETY COAT

A LIFE SAVER

Men wearing Midwestern striped coats can be seen far more easily — in fog — smoke — dust — mist and in darkness. Fewer men lost in debris after a cave-in. Fewer men knocked off ledges or ladder by hose stream — or run down by traffic. Send for complete description of this fine life saver coat.

MIDWESTERN COMBINATION SUIT

DETACHABLE LININGS

Rubberized coat and Bunker Pants with detachable wool linings. Flexible elastic inner sleeve for wrist keeps out water, cold and sparks. Wool lining can be added to any Midwestern fire coat at small additional cost. Snap buttons make it easy to attach and detach quickly.

BUNKER PANTS

Bunker Pants equipped with removable wool lining, sturdy construction, reinforced crotch for pole sliding. These pants, together with coat as illustrated at left, is Midwestern's combination suit No. 101.

MIDWESTERN MFG. CO., Mackinaw, Illinois

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WHEN VICTORY IS WON

FYR-FYTER WILL HAVE AN ENLARGED AND IMPROVED LINE

We are hitting the Axis with all we've got. Consequently, there are no Fyr-Fyters available for civilian use except on the highest priority ratings. When the story of Victory is written, our enlarged manufacturing facilities will again be devoted to the production of Fyr-Fyter Extinguishers for civilian fire protection.

We are old hands at converting from war-time to peace-time production. We served the government in World War I and when the Armistice was signed we immediately began to produce for civilian use. We promise that this performance will be repeated.

Remember FYR-FYTER

In the meantime, remember our name. You will have obsolete, worn-out equipment you will want to replace as soon as we are in full civilian production again. We will be happy to serve you.

THE FYR-FYTER CO.

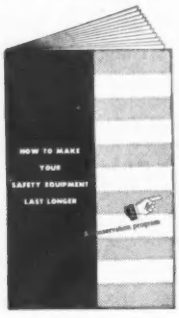
Dept. 20, Dayton, Ohio

ARMY NAVY

FYR-FYTER

MANUFACTURERS' ANNOUNCEMENTS

Just published by Mine Safety Appliances Company, Pittsburgh, Pa., is a comprehensive 32-page handbook entitled "How to Make Your Safety Equipment Last Longer." Covering every type of personal protective equipment, from protective hats, gas masks, respirators and gas instruments, through the list to safety clothing, this well-illustrated publication details the practical "do's and don'ts" of safety equipment care in a form readily adaptable for instruction of equipment users.



The section on various methods of sterilization for masks and respirators is thoroughly handled, as indeed are all sections in the book, and attention is given to many common-sense methods for repair and preventive maintenance of articles on the hard-to-get list. Of particular interest to the fire service are the chapters dealing with the M.S.A. All-Service gas mask, hose mask, and the H-H Inhalator. Write to the Mine Safety Appliances Co. for your copy.

●

A new booklet, entitled "Maintenance of First Aid Fire Fighting Equipment," has just been brought out by American-La France-Foamite Corp., Elmira, N. Y. The booklet is divided into six sections: (1) Vaporizing Liquid, (2) Soda-Acid, (3) Foam, (4) Anti-Freeze, (5) Carbon-Dioxide Extinguishers, and (6) charts giving data in condensed form as to extinguisher and engine characteristics, methods of operation, capacity, range of stream, etc. Inspection, upkeep, charging, discharging, and recharging are discussed, with emphasis on the periodic practice-handling and discharge of the units under simulated fire conditions. This timely and valuable booklet illustrates the various classes of fire and many types of extinguishers and wheeled engines. The booklet is free upon request.

Also available, without charge from American-La France-Foamite Corp., are two charts covering the characteristics of several of the more common types of fire extinguishers and wheeled engines. While these charts are well arranged and useful it should be noted that all approved types of extinguishers are not covered.

●

The Atlas Fire Equipment Co., Inc., 26 Warren Street, New York City, has just released a new series of descriptive sheets covering their life nets, drill tower nets, life belts, and other fire department equipment. Included is a ready-reference chart for determining quickly the force of impact of falling bodies. Fire department officers, who would like copies of this material, should address their requests to the manufacturer.

●

A new supplement to the 1940 National Electrical Code has just been published by the National Board of Fire Underwriters. The supplement contains numerous interim amendments to the Code and interpretations of its rules. Copies available without charge from the N.F.P.A.

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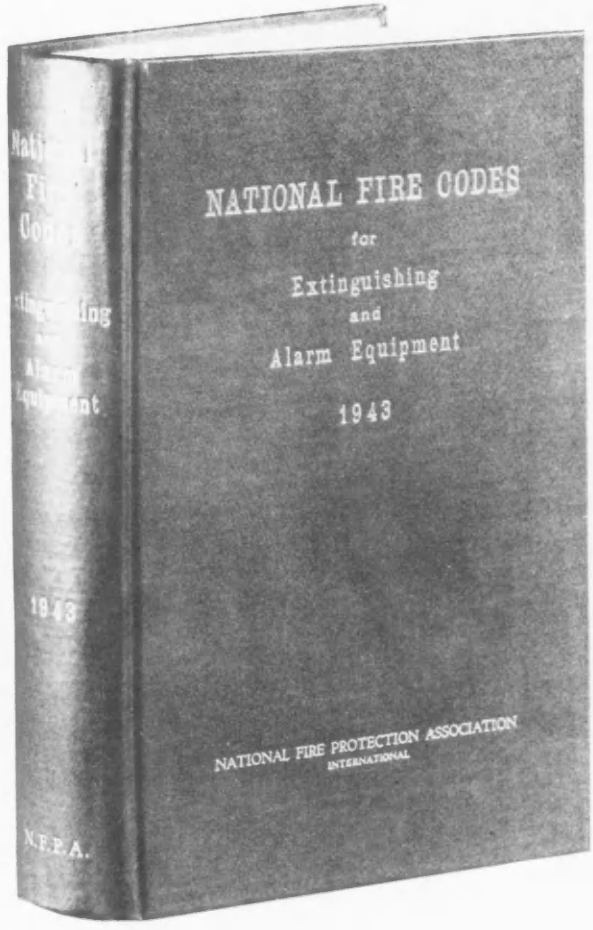
EXTINGUISHING AND ALARM EQUIPMENT

1943



This volume brings together for convenient reference the many N.F.P.A. standards dealing with the various types of fire extinguishing and alarm equipment and related features of supervision, maintenance and organization. These standards, dealing with all phases of fire extinguishing and alarm equipment, are universally recognized and used as the authoritative guides to the best practice.

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Please send me ..... copies of National Fire Codes for Extinguishing and Alarm Equipment, for which $..... ($3.00 per copy postpaid) is enclosed.

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STREET .....

CITY ..... STATE .....

6-43V

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★ I'm a Smoke Eater from 'way back ★

Many years ago, I drove a Ward LaFrance pumper to many a fire. It never let us down. Neither has the Ward LaFrance equipment we've bought since I became Chief. Today you've got to have an urgent need for fire apparatus to be able to get it — but since we've been buying Ward LaFrance pumpers exclusively for years, we can depend on the ones we have, for the duration and then some. I'm glad to hear Ward LaFrance is turning out big Tank-Recovery Wrecker units and fire trucks for the armed forces. That means our boys are getting the kind of equipment it takes to win a war.

P. S. *Ward LaFrance* is a name to remember after this war is won. It stands for *special trucks*, engineered and built for the job to be done. No matter what your requirements, you'll probably find custom-engineered and built trucks are the economical, efficient, profitable kind of vehicle to buy. It's none too soon to make preliminary inquiries concerning your future requirements. Our experienced engineers will welcome your letter.

WARD LAFRANCE TRUCK DIVISION

★ GAI GREAT AMERICAN INDUSTRIES ★

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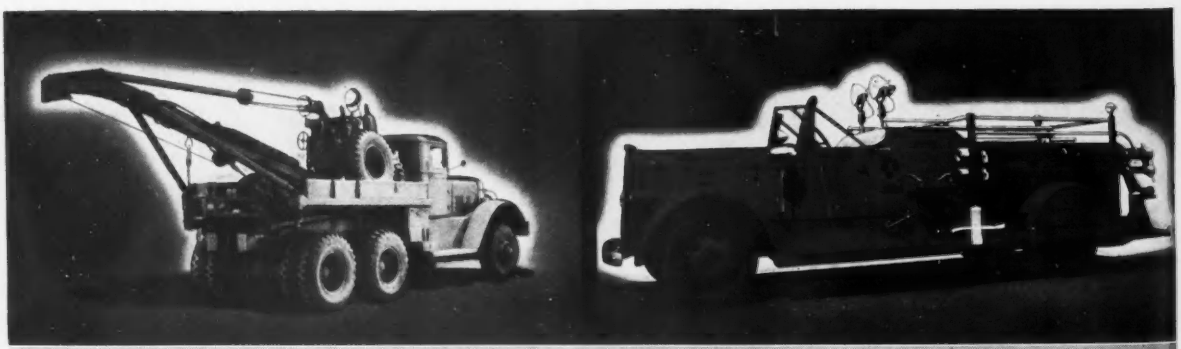

WARD LAFRANCE